

App. No. 09/990,097
Amendment dated March 27, 2007
Reply to Office Action of Nov. 28, 2006

Atty. Docket No. 01-6145

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REMARKS/ARGUMENTS

The above amendment and the following remarks are in reply to the non-final Office action of 11/28/2006 in the instant application. In light of this reply, reconsideration and further examination of this application are respectfully requested.

Forty-four claims (1, 3-14, 16-40 and 58-63) were pending in this application. In response to a previous, timely traversed Restriction/Election requirement, seven claims (6, 8, 9, 17, 19, 20 and 61) were provisionally withdrawn from consideration.

In the above amendment, six claims (1, 14, 18, 21, 39 and 58) were amended, and one claim (16) was cancelled. Accordingly, forty-three claims (1, 3 - 14, 17 - 40, and 58 - 63) remain pending for reconsideration and further examination.

In section 3 of the Office action, the Examiner rejected claims 14, 16, 18, 21-40, 58-60, and 62 under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement, stating, in pertinent part,

"[T]he specification discloses 'According to one aspect of the present invention, an apparatus capable of providing an output signal in response to sound pressure in the vicinity of a desired source operates in multiple modes corresponding to different positions of a movable boom, *such that the ratio of the amplitude of the output signal to the amplitude of sound pressure in the vicinity of the desired source remains substantially independent of the operating mode. This is accomplished by changing the ratio of the amplitude of the output signal to the amplitude of sound pressure at the acoustic sensing point in response to the position of the boom*.' " (Emphasis added.)

In section 6, claims 58-60 and 62 were rejected under 35 U.S.C. 112, second paragraph, as being indefinite for "failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention."

Responsive to the foregoing, each of the independent claims (1, 14, 21, 39 and 58) has been amended herein to ensure that the above teachings of the specification are now distinctly claimed in the claims.

In section 9, the Examiner rejected claims 58 and 60 under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5761298 to Davis et al. (Davis), stating, in pertinent part,

Regarding Claim 58, ... Davis discloses ... *means for maintaining the signal amplitude [ratio] independently of the position of the secondary boom (Figs. 1 and 3A-3B).*" (Emphasis added.)

In light of the above amendment to claim 58 and the remarks that follow, this rejection is respectfully traversed.

Amended claim 58 of the present invention now includes the following distinguishing limitations:

App. No. 09/990,097
Amendment dated March 27, 2007
Reply to Office Action of Nov. 28, 2006

Atty. Docket No. 01-6145

Claim 58: "... wherein a ratio of an amplitude of the output signals to an amplitude of the acoustic signals received at the opening of the secondary boom is a function of at least the position of the secondary boom"; and,

"... means operable in response to movement of the secondary boom between the first and second positions thereof for maintaining a ratio of the amplitude of the output signal to an amplitude of sound pressure in the vicinity of the desired acoustic source substantially independent of the position of the secondary boom." (Emphasis added.)

However, a detailed review of Davis reveals that neither of the foregoing limitations is taught or suggested. Indeed, in the Davis '298 headset, the first "ratio" above, *i.e.*, the ratio of the output amplitude to the input amplitude at the open end of the secondary boom, remains the same, regardless of the position of the secondary boom, and there is simply no teaching or suggestion whatsoever for the second limitation. Accordingly, it is respectfully submitted that claim 58, as well as the claims respectively dependent from it, are patentably distinguishable over Davis.

In section 12, the Examiner rejected claims 58, 59 and 60 under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 4020297 to Brodie, stating in pertinent part,

"Regarding Claim 58, ... Brodie discloses ... *means for maintaining the signal amplitude [ratio] independently of the position of the secondary boom (Fig. 1)*". (Emphasis added.)

This rejection is also respectfully traversed for essentially the same reasons given above with respect to claim 58 *vis-à-vis* Davis, namely, there is no teaching or suggestion in Brodie for the limitation of claim 58 recited above, and accordingly, it is respectfully submitted that claim 58, as well as the claims respectively dependent from it, are patentably distinguishable over Brodie.

In section 17 of the Office action, the Examiner rejected claims 14, 16, 18, 21, 23-24, 26, 39, and 62 under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5761298 to Davis in view of U.S. Patent No. 5359157 to Liu, stating, in pertinent part,

"Regarding claim 14, ... Davis discloses ... *sensitivity control means, coupled to the boom, for maintaining a ratio of an amplitude of the output signal to an amplitude of sound pressure at the acoustic sensing point independently of the position of the boom (Figs. 1 and 3A-3B)*."

"Claim 21 is essentially similar to Claim 14 and is rejected for the reasons stated above *apropos to Claim 14 (Figs. 1 and 3A-3B)*." (Emphasis added.)

App. No. 09/990,097
Amendment dated March 27, 2007
Reply to Office Action of Nov. 28, 2006

Atty. Docket No. 01-6145

In light of the above remarks regarding independent claim 58 *vis-à-vis* Davis and the remarks that follow regarding independent claims 14 and 21 *vis-à-vis* both Davis and Liu, this rejection is respectfully traversed.

Amended claims 14 and 21 include the following distinguishing limitations:

Claim 14: "... means for changing the sensitivity of the microphone in response to movement of the boom between the first and second positions such that a ratio of the amplitude of the output signal to an amplitude of sound pressure in the vicinity of the desired acoustic source is maintained substantially independently of the position of the boom.

Claim 21: "... a controller circuit coupled to the boom and operable in response to movement of the boom between the first and second positions to change a ratio of an amplitude of the output signal to an amplitude of the acoustic signal sensed at the microphone diaphragm such that a ratio of the amplitude of the output signal to an amplitude of sound pressure in the vicinity of the desired acoustic source is maintained substantially independently of the position of the boom.

A thorough review of both Davis and Liu reveals that neither contains any teaching or suggestion whatsoever of either a "means for changing a sensitivity of the microphone in response to movement of the boom," or a "controller circuit ... operable in response to movement of the boom ... to change a ratio of an amplitude of an output signal to an amplitude of sound pressure sensed at the microphone diaphragm," and in either case, "such that a ratio of the amplitude of the output signal to an amplitude of sound pressure in the vicinity of the desired acoustic source is maintained substantially independently of the position of the boom." Additionally, it is noted that Liu fails to supply any of the deficiencies of Davis *vis-à-vis* independent claim 58 discussed above, and from which claim 62 depends.

Accordingly, it is respectfully submitted that independent claims 14, 21 and 58, as well as the claims respectively dependent from them, are patentably distinguishable over the proposed combination of Davis and Liu.

In section 28, the examiner rejected claims 14, 16, 18, 21, 23-24, 26, 30-34, 36, 39, 40, and 62 under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 4020297 to Brodie above in view of U.S. Patent N. 5359157 to Liu above.

App. No. 09/990,097
Amendment dated March 27, 2007
Reply to Office Action of Nov. 28, 2006

Atty. Docket No. 01-6145

In light of the above remarks regarding independent claim 58 *vis-à-vis* Davis and Brodie, and the remarks above regarding independent claims 14, 21 and 58 *vis-à-vis* both Davis and Liu, this rejection is respectfully traversed.

In particular, none of Davis, Brodie or Liu teaches or suggests the respective distinguishing limitations of independent claims 14, 21 or 58 discussed above, whether taken individually or in any combination desired, and accordingly, it is respectfully submitted that independent claims 14, 21 and 58, as well as the claims respectively dependent from them, are patentably distinguishable over the proposed combination of Brodie and Liu.

In section 45, claims 1, 3-4, 7, 10-14, 16, 13, 21-22, 25-30, 32, and 34-36 were rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5276916 to Pawlish et al. (hereafter as Pawlish) in view of U.S. Patent No. 5359157 to Liu above, the Examiner stating, in pertinent part,

"Regarding Claim 1, Pawlish discloses ... a controller, coupled to the boom, for changing a ratio of an amplitude of the output signal to an amplitude of sound pressure at the acoustic sensing point in response to the position of the boom (Figs. 1-2 and 4; column 2, line 40 to column 3, line 55); [and]

wherein the controller is adapted to maintain a ratio of the amplitude of the output signal to an amplitude of a sound pressure in the vicinity of the desired acoustic source independently of the position of the boom (Figs. 1-2 and 4; column 2, line 40 to column 3, line 55)."

... Claim 14 is essentially similar to Claim 1 and is rejected for the reasons stated above apropos to Claim 1; [and];

... Claim 21 is essentially similar to Claim 14 and is rejected for the reasons stated above apropos to Claim 14 (Fig. 1)." (Emphasis added.)

In light of the above amendment to independent claims 1, 14 and 21 and the remarks that follow, this rejection is respectfully traversed.

Independent claims 1, 14 and 21 include the following respective distinguishing limitations:

Claim 1: "... wherein the controller is adapted to maintain a ratio of the amplitude of the output signal to an amplitude of sound pressure in the vicinity of the desired acoustic source independently of the position of the boom;

Claim 14: "... means for changing the sensitivity of the microphone in response to movement of the boom ... such that such that a ratio of the amplitude of the output signal to an amplitude of sound pressure in the vicinity of the desired acoustic source is maintained substantially independently of the position of the boom;" and,

App. No. 09/990,097
Amendment dated March 27, 2007
Reply to Office Action of Nov. 28, 2006

Atty. Docket No. 01-6145

Claim 21: "... a controller circuit coupled to the boom and operable ... such that a ratio of the amplitude of the output signal to an amplitude of sound pressure in the vicinity of the desired acoustic source is maintained substantially independently of the position of the boom."

The Pawlish reference relates to a "two-way radio 10" having a "second housing portion 12" that is "pivotably or hingedly connected" to a "first housing portion 11" ('916, col. 2, lines 30-42), to move between an "open configuration," in which the radio 10 operates as a conventional "handset" ('916, Figs. 1 and 3; col. 3, lines 27-34), and a "closed configuration," in which the radio 10 operates as a "speaker-microphone," *i.e.*, a speakerphone. ('916, Fig. 2; col. 3, lines 34-35.) The radio 10 includes a "controller 36" that controls, *inter alia*, the respective gains of two amplifiers, an "audio amplifier 32" coupled to the input of a "speaker 33" of the radio and a "microphone amplifier 35" coupled to the output of a "microphone 34" of the radio. ('916, Fig. 4; col. 2, lines 45-60.) The controller 36, in cooperation with a "switch 37" that senses the open and closed positions of the housing portions 11 and 12, enables the respective gains of the amplifiers 32 and 35 to be pre-set independently of each other and in accordance with whether the phone is in the open or closed position using a pair of "up-and-down buttons 15 and 16." ('916, col. 2, lines 65-68, col. 3, lines 1-26.)

However, it should be noted that, in the present invention, when the boom position is changed, the distance between the desired sound source and the main body does not change; thus, the distance between the desired sound source and the acoustic sensing point is a direct function of the position of the boom. In Pawlish, the ratio is maintained independently of the boom position if and only if the user moves the main body to a particular location that is dedicated to each different boom position. In the present invention, the ratio is maintained independently of the boom position if and only if the user does not move the main body when changing boom positions. Therefore, the two devices are mutually exclusive (here, ratio refers specifically to the ratio of sound pressure at the acoustic sensing point to that at the desired sound source).

Thus, there is no teaching or suggestion anywhere in Pawlish for the above limitation of claim 14 of a "means for changing the sensitivity of the microphone," nor of the above limitations of claims 1, 14 and 21 of "such that a ratio of the amplitude of the output signal to an amplitude of sound pressure in the vicinity of the desired acoustic source is maintained substantially independently of the position of the boom." It is further noted that Liu fails to supply any of the foregoing deficiencies in teaching of Pawlish. Accordingly, it is respectfully submitted that inde-

App. No. 09/990,097
Amendment dated March 27, 2007
Reply to Office Action of Nov. 28, 2006

Atty. Docket No. 01-6145

pendent claims 1, 14 and 21, as well as the claims respectively dependent from them, are patentably distinguishable over the proposed combination of Pawlish and Liu.

In section 69 of the Office action, the Examiner rejected claims 14, 21, 23, 24, 30-33 under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Application Publication No. 20030003969 [Tong] in view of U.S. Patent No. 5359157 to Liu above, stating, in pertinent part,

"Regarding Claim 14, ... Tong discloses ... sensitivity control means, coupled to the boom, for maintaining a ratio of an amplitude of the output signal to an amplitude of sound pressure at the acoustic sensing point independently of the position of the boom (Figs. 1, 3A-E, and 7; page 2, paragraphs 0023 and 0028-0030); [and]

Claim 21 is essentially similar to Claim 14 and is rejected for the reasons stated above apropos to Claim 14." (Emphasis added.)

In light of the above amendments to independent claims 14 and 21 and the remarks that follow, this rejection is respectfully traversed.

As discussed above, amended claim 14 and 21 include the following distinguishing limitations:

Claim 14: "... means for changing the sensitivity of the microphone in response to movement of the boom ... such that a ratio of the amplitude of the output signal to an amplitude of sound pressure in the vicinity of the desired acoustic source is maintained substantially independently of the position of the boom;" and,

Claim 21: "... a controller circuit coupled to the boom and operable in response to movement of the boom between the first and second positions such that a ratio of the amplitude of the output signal to an amplitude of sound pressure in the vicinity of the desired acoustic source is maintained substantially independently of the position of the boom."

Tong discloses a "headset 10 adapted for use with a cellular telephone" [Tong, Abstract] that includes a "conventional remote control unit 40" that "comprises a conventional [earphone 21] volume dial 43 and a conventional [microphone 34] mute switch 44. The volume dial 43 is used to control the volume of the signals received through the earphone 21 from the cellular telephone. The mute switch is used to temporarily disengage the transmission of audio signals to the microphone 34." (Tong, par. [0031].

However, there is no teaching or suggestion whatsoever in Tong that either the manually actuated "volume dial 43" or "mute switch 44" "chang[es] the sensitivity of the microphone in response to movement of the boom," or is "operable in response to movement of the boom" of claims 14 and 21 above, nor of their respective limitations of "such that a ratio of the amplitude

App. No. 09/990,097
Amendment dated March 27, 2007
Reply to Office Action of Nov. 28, 2006

Atty. Docket No. 01-6145

of the output signal to an amplitude of sound pressure in the vicinity of the desired acoustic source is maintained substantially independently of the position of the boom." Additionally, as discussed above, Liu fails to supply any of the foregoing deficiencies in teaching of Tong. Accordingly, it is respectfully submitted that independent claims 14 and 21, as well as the claims respectively dependent from them, are patentably distinguishable over the proposed combination of Tong and Liu.

In section 78, the Examiner rejected claims 14, 21, 30, 32, 34 under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6643528 to Shim et al. (hereafter as Shim) in view of U.S. Patent N. 5359157 to Liu above, stating, in pertinent part,

"Regarding Claim 14, ... Shim discloses ... sensitivity control means, coupled to the boom, for maintaining a ratio of an amplitude of the output signal to an amplitude of sound pressure at the acoustic sensing point independently of the position of the boom (Figs. 1A-B and 7A-B; column 2, line 59 to column 3, line 20); [and,]

Claim 21 is essentially similar to Claim 14 and is rejected for the reasons stated above apropos to Claim 14." (Emphasis added.)

In light of the above amendments to independent claims 14 and 21 and the remarks that follow, this rejection is respectfully traversed.

Shin discloses a "radiotelephone 12," an associated, collapsible "audio appliance 11" (*i.e.*, a headset), and an associated "holster 21." The audio appliance 21 and the radiotelephone 12 are both stowable in and removable from the holster 12, and the audio appliance connects to the radiotelephone through the holster via a wire that extends and retracts from, *e.g.* a "cable retraction mechanism 30" in the holster. ('528, col. 3, lines 29-33.) Each of the radiotelephone and the audio appliance includes a set of a microphone and a speaker, and each microphone-speaker set can be disabled when the other set is retracted from the holster for use ('528, Abstract).

However, there is no teaching or suggestion whatsoever in Shim that either the radiotelephone or the audio appliance "chang[es] the sensitivity of the microphone in response to movement of the boom," or is "operable in response to movement of the boom" of claims 14 and 21 above, nor of their respective limitations of "such that a ratio of the amplitude of the output signal to an amplitude of sound pressure in the vicinity of the desired acoustic source is maintained substantially independently of the position of the boom." Further, as discussed above, Liu fails to supply any of the foregoing teaching deficiencies of Shim. Accordingly, it is respectfully submitted that independent claims 14 and 21, as well as the claims respectively dependent from them, are patentably distinguishable over the proposed combination of Shim and Liu.

App. No. 09/990,097
Amendment dated March 27, 2007
Reply to Office Action of Nov. 28, 2006

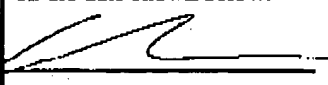
Atty. Docket No. 01-6145

In section 84, the Examiner objected to claims 5 and 63 as being dependent upon a rejected base claim, but indicated that they would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. However, in light of the above amendment and remarks, it is respectfully submitted that all of the remaining claims of the application are now allowable over the art of record.

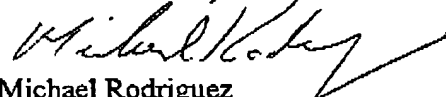
Additionally, it is respectfully submitted that independent claims 1, 14, 21, and 58 now constitute allowable generic or linking claims, and pursuant to MPEP 809.04, that the claims respectively dependent from them and previously withdrawn from consideration (6, 8, 9, 17, 19, 20 and 61) should be rejoined to the application, examined for patentability under 37 CFR 1.104 and held allowable.

In light of the above, it is respectfully submitted that claims 1, 3-14, 17-40 and 58-63 are now in an allowable form, and Applicant therefore respectfully requests that a timely Notice of Allowance be issued in this case.

If there are any questions regarding the above, the Examiner is invited to call the undersigned at the number listed below.

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I hereby certify that this paper is being facsimile transmitted to the U.S. Patent and Trademark Office on the date shown below.	
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Respectfully submitted,



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